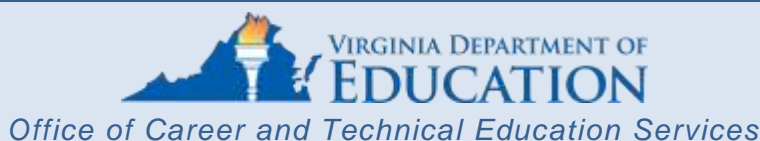


Governor's STEM Academy Brief



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The purpose of this monthly brief is to provide information, resources, and a networking vehicle to support the STEM (science, technology, engineering, and mathematics) Academies in Virginia.

GOVERNOR'S STEM ACADEMIES SPOTLIGHT

The Governor's STEM Academy at George C. Marshall High School, Fairfax County Public Schools, held a week long cyber security training camp July 8-12, 2013, for cyber enthusiasts. Fifty-two high school students representing 16 different high schools were introduced to cyber security, fundamental flaws of the internet, reconnaissance, preparing the defense, monitoring, network security layers, and situation assessment. Students were provided with virtual images of Windows XP, 7, and Ubuntu Linux so they could learn on their own laptop and execute over 20 lab activities. Additionally, they trained for upcoming cyber security competitions to be held in spring 2014, such as the Air Force Association's CyberPatriot and the Virginia Governor's Cyber Challenge.

CAREER LINKS—SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS (STEM)

- To investigate careers in science, technology, engineering, and mathematics, visit [Careers in the Biological Sciences](#); [Engineering Technology](#); [Careers in Science](#); [This Is What STEM Jobs Really Look Like](#); [Pathways to Technology](#); [We Use Math in Careers](#); [Become an Engineer—Try Engineering](#); [Virginia Career VIEW](#).
- The American Statistical Association's [Statistics Education Web](#) offers K–12 lesson plans, teaching resources, and the Association's [Career Center](#).
- [Crosswalking Occupations to Career Clusters](#) explains how new employment projections are matched to Career Clusters.
- The National Science Foundation's 2013 report titled [Women, Minorities, and Persons with Disabilities in Science and Engineering](#) is a statistics-based study documenting the pressing need for more diversity in STEM education.
- Resources for [Women & Minorities in STEM](#) are available through the STEM Georgia organization.

GRANTS AND OPPORTUNITIES

- The [STEM EQUITY PIPELINE](#) lists scholarships for students who are interested in further study in STEM.
- In support of the upcoming **Careers in Energy Week**, October 14-20, 2013, the Virginia Education Workforce Consortium (VEWC) is sponsoring a student contest to help draw awareness to this critical workforce. In Virginia, 6th through 12th grade students are invited to enter [VEWC's Careers in Energy Student Contest](#). The contest theme is "Behind the Technology and Energy Workers." Students can submit an essay or digital media presentation focused on how energy workers have improved the world. All submissions are due via e-mail to VEWC by **midnight, September 25, 2013**.
- Governor Robert McDonnell recently announced the partnership with the non-profit Air Force Association headquartered in Arlington to provide an even more exciting Governor's Cyber Challenge. Using the CyberPatriot National High School Cyber Defense Competition as an "engine," teams from throughout Virginia will be invited for an all-day event in Northern Virginia in the spring of 2014. Students, educators, administrators and parents can register now for the national CyberPatriot competition by visiting

www.uscyberpatriot.org. By signing up for the national competition, students will automatically be enrolled in the Governor's Cyber Challenge. The national preliminary rounds of that competition in the fall and winter of 2013 will prepare teams of students for what promises to be an even bigger and better Governor's Cyber Challenge next spring.

- [The Aviation Academy](#), a part of Newport News Public Schools, teaches students about aviation, electronics, engineering and technology using hands-on projects. This school year, students will have a 750-pound project when they set out to build an airplane. Kent Stitt, a retired Air Force officer, learned about the Eagle's Nest Projects, which donates airplane kits to schools, and served as a mentor for the Aviation Academy. Eagles Nest officials visited the school in March and within days they agreed to donate a kit. This is the ninth kit they have donated, and the first on the East Coast. "The project is the kind that hooks students, because it lets them see how science, technology, engineering and mathematics skills can be applied in a real-world setting," said Aaron Smith, program administrator.

INSTRUCTIONAL STRATEGIES

- [Renewable Resources: Tetrahedron Kite](#) uses STEM concepts to investigate wind energy, a renewable environmental resource, as students conduct scientific investigations to explore wind energy, assemble and kites created from tetrahedrons, explore kite technology and calculate speed and velocity.
- See Indiana's [I-STEM Resource Network](#) for lesson plans and other classroom materials in all STEM areas.
- Search the [National Science Digital Library](#) for educational resources for technology, engineering, and other STEM subjects.
- A joint project of the U.S. Navy and Discovery Education, [STEM for the Classroom](#) features lesson plans and career resources.
- Teacher resources at [Action Bioscience include](#) featured articles [and a lesson directory](#).
- Explore [OSEP Curriculum for student activities and projects from Northwestern University's Office of STEM Education Partnerships](#).
- [The Physics Classroom](#) offers tutorials, laboratory descriptions, reasoning activities, and many other teaching links.
- [Teachers Try Science includes a database of mathematics and science lesson plans, as well as resources on strategies and tutorials](#).
- [Science Netlinks](#) contains lesson plans searchable by grade level and one or more STEM disciplines.
- NASA's [PUMAS](#) site includes many K–12 lessons that combine mathematics and science.
- [Illuminations: Resources for Teaching Math](#) presents K–12 activities, lessons, and Web links from the National Council of Teachers of Mathematics.
- [WeUseMath.org](#) includes [Math Resources for Teachers](#) and other links to encourage students in the study of mathematics.
- [Where Discoveries Begin](#) tells the stories behind STEM-related inventions and innovations funded by the National Science Foundation.
- The [STEM Equity Pipeline](#) provides resources, professional development opportunities, training modules, and news.
- See [Computing Portal](#) for a link to [STEMRobotics](#) lessons and other resources.
- Engineering lessons and projects, as well as career resources, are available from [IEEE](#).
- See [Emerging Workforce Trends in Information and Computing Technology 2011 to 2018](#) for a case study predicting how several STEM specialties might come together in 2025 to help solve the projected global water crisis.

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